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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------------|------------------|
| 09/961,061 | 09/24/2001 | Hirohisa Nakano | 110662 | 5208 |
| 25944 | 7590 | 07/16/2003 | | |
| OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320 | | | EXAMINER SEVER, ANDREW T | |
| | | | ART UNIT 2851 | PAPER NUMBER |

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/961,061 | NAKANO ET AL. | |
| | Examiner | Art Unit | |
| | Andrew T Sever | 2851 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 24 June 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-6, 10 and 11 is/are rejected.
- 7) Claim(s) 7-9 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 24 November 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____ .
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>17</u> . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/24/2003 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takamatsu (US 6,254,238) and further in view of Shiraishi et al. (US 6,334,686.)

Takamatsu teaches in figure 3 a projector comprising a light source (4), an electrical optical device (6) that modulates the light irradiated from the light source (4) in accordance with image information to form an optical image, and a projection optical system (20) that enlarges and projects the optical image formed by the electrical optical device. A casing (inherent and indicated by 18) is provided that accommodates the light source, the electrical optical device and the projection optical system. A centrifugal fan disposed around the light source that inhales air by a rotation thereof and that discharges the air in tangential direction of the rotation. (As nearly as can be understood by the

examiner, this part of claim 1 reads on fan 1 in figure 3 of Takamatsu. The fan is around the light source and intakes air directly from the light source as well as from the optical components.) An exhaust duct (30) is accommodated in the casing and the exhaust duct has a first end connected to an air discharge hole of the centrifugal fan (1) and a second end connected to an exhaust hole (3). The exhaust duct is clearly rectangular in shape and thus has a cross section that has a larger diameter along the side of the casing than the diameter in a direction orthogonal with the side of the casing (it is wider than it is high) as is claimed by applicant's claim 3 and inherently the side is one of a lateral side, rear side and bottom side as is claimed in applicant's claim 10. The exhaust duct has one bent portion that appears to be bent at an angle that is less than 45 degrees as is claimed in applicant's claim 4. (Bent portion is the portion where the exhaust duct becomes larger, directly underneath the arrow for the "30 OUTLET DUCT" part indicator.) Takamatsu teaches in column 6 lines 62-67 that the direction of the outlet on the case can be changed, which would include having the exhaust hole formed at the front of the casing for the projecting optical system as shown in figure 1, where outlet 1b is facing the same direction as projecting lens 20.

An intake duct (cooling duct 2) is also provided between the optical component case and the exhaust duct (outlet duct 30) to introduce components inside the optical component case to an air intake of the centrifugal fan (1) as is claimed by applicant's claim 5. This intake duct (2) includes a partition member (not labeled but between 10 and 17 on the intake duct 2) that divides the after-cooling air transferred from the light source (4) and the after-cooling air transferred from the other optical components to the

exhaust opening (opening of the centrifugal fan 1). The opening that introduces the cooling air (13 and 14) is formed on a side of the optical component case opposite to that where the intake duct is provided (the openings are on the top of the case and the intake duct is on the bottom with the optical components in between.) as is claimed by applicant's claim 6.

However, Takamatsu does not specifically teach that the at least one bent portion in the exhaust duct is such that the exhaust stream discharged from the centrifugal fan changes the direction of the exhaust stream by approximately ninety degrees relative to the direction of the exhaust stream at the air discharge hole of the centrifugal fan. This structure, however, is well known. One example is given in figure 14 of Shiraishi et al. where the exhaust duct (174,175) connected to the discharge hole (part of fan next to 174) of a centrifugal fan (140) turns at an approximately ninety degree angle (before ducts 101 and 203) in order to accommodate the limited size of the projector and extends along at least two sides of the inside casing as is claimed by applicant's claim 2. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made in order to accommodate a larger duct means to make the duct extend along at least two sides of the inside casing as is commonly known to be done and as taught by Shiraishi, in Takamatsu's projecting device.

With regards to applicant's new claim 11, applicant claims that the cross-sectional area of the exhaust duct is approximately constant. Takamatsu's outlet duct in figure 3 clearly does not have a substantially constant cross-sectional area, however, Takamatsu's outlet is

approximately constant, since the flaring is clearly less than 45 degrees, which is well within the acceptable meaning of an approximately constant cross-sectional area exhaust duct.

Allowable Subject Matter

4. Claims 7-9 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. The following is a statement of reasons for the indication of allowable subject matter:
Claim 7 claims that the intake of the centrifugal fan is disposed in the same place as the light source, such as is believed to be shown in applicant's figure 6, where the intake of centrifugal fan is disposed beneath where the light source would be disposed. This along with the other mater in claim 7 and the claims it is dependent on (claim 5 and claim 1) was not found in the prior art, therefore claim 7 would be allowable if written in independent form including the mater of claims 1 and 5. Claims 8 and 9 are dependent on claim 7 and would therefore also be allowable if written in independent form containing all the subject mater of the claims they are dependent on or if claim 7 were written in independent form.

Response to Arguments

6. Applicant's arguments filed June 24, 2003 have been fully considered but they are not persuasive.

In the filling of the RCE, the applicant argued that the office in the advisory action misunderstood the arguments presented in the May 9, 2003 Amendment after final

rejection. Specifically the applicant repeats the argument that the only motivation for combining Shiraishi with Takamatsu would be through impermissible hindsight. However this was specifically what the majority of the part 5 of the advisory action commented on. The arguments against the impermissible hindsight argument from the advisory action will be repeated here.

The office points out that in the final rejection and the subsequent interview it was stated that Shiraishi was provided as a secondary reference serving as evidence of the well known structure of a ninety degree bent portion in duct work of projectors and it was irrelevant what purpose the duct in Shiraishi was serving in Shiraishi's projector, since it was only teaching that the bent portion suggested by Takamatsu could obviously be ninety degrees and that one with ordinary skill in the art at the time the invention was made would have recognized that making ninety degree bends in projector cooling air duct work is well known for such purposes as accommodating the limited size of the projectors (which was the motivation given for combining the two teaching that of Takamatsu and that of the well known art of bending cooling air ducts by ninety degrees as taught by Shiraishi.) As is pointed out in the final rejection Takamatsu specifically teaches in column 6 lines 62-67 that the direction of the outlet on the case can be change such as having it face the same direction as the projecting lens; obviously one with ordinary skill in the art would recognize that this would require bending the duct work by ninety degrees to face the front since otherwise the duct work would still exhaust out the side. Since Shiraishi clearly teaches one with ordinary skill in the art at the time of the

invention would recognize that ducts in projectors could be bent by ninety degrees, that one with ordinary skill would have very little difficulty bending Takamatsu's.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

European patent application EP 1 102 117 A1 to Tabuchi et al. and assigned to Matsushita Electric Industrial Co. as provided by the applicant. See Figure 18 which shows an exhaust duct which exhaust out the front of the projector (the side which is the same as the projection lens 12) and the exhaust duct shows the well-known 90 degree bend near where air from fan 328 is exhausted into the duct work.

US patent 6,497,489 to Li et al. teaches in figure 2 a duct work (24) which also includes the well known 90 degree bend along two edges of the case of the projector.

8. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114.

See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Sever whose telephone number is 703-305-4036. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russell Adams can be reached on 703-308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

AS
July 9, 2003



RUSSELL ADAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800